

*What is claimed is:*

1. A X-DSL modem comprising:
  - an analog portion for converting packets of digitized symbols to an analog transmission and for converting received analog signals to packets of digitized symbols;
  - 5 a DFT engine operating as a filter for packets of digitized data and digitized symbols encoded with a CAP QAM line code and as a baseband to carrier band converter and vice versa for packets of digitized data and digitized symbols respectively encoded in a DMT line code;
  - 10 a framer/encoder for framing and encoding packetized digitized data from a plurality of communication channels in at least two DMT and CAP QAM X-DSL line codes; and a decoder(deframer for decoding and deframing the digitized data on the receive path.